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frequency and intensity of the ejections of coal and gas and the decrease in cases of traumatism among miners in mines most subject to sudden ejections of coal and gas in this region of the Donbass. Mines of the Artemugol' Combine can be taken as an example. Here, although the number of mine coal seams prone to sudden ejections of coal and gas increased from 40 in 1951 to 49 in 1952, and the increase in coal output from them in the same period was 14 percent, the number of ejections decreased from 75 in 1951 to 43 in 1952; the 1952 figure included 19 cases artificially caused by blasting. Furthermore, in 1952, the intensity of the ejections (judged by the amount of coal ejected) was only half that of 1951.

STUDY OF WARNING SIGNS PRECEDING EJECTIONS

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In 1952, the Makeyevka Scientific Research Institute made a study of all the sudden ejections of coal and gas that had occurred in the Donbass from 1946 to date. Particular attention was paid to warning signs, which may be either audible or inaudible. Audible warnings are percussions, noises, or rumblings in the solid mass. Inaudible warnings are crumbling of the coal, changes in the toughness of the coal, a scaling off of coal particles, protrusion of the coal, increases in the amount of gas liberated, changes in the thickness of the seam, changes in interstratification, an increase in the pressure on the props, changes in the color and luster of the coal, and formation of clouds of dust.

Ten mines located in various areas and working a number of different coal seams were studied. In these mines 230 sudden ejections of coal and gas occurred during the period of study. Most of these ejections were preceded by audible or inaudible warnings or a combination of both. In only 35 cases were no warnings noted.

The following table gives the names and locations of mines studied, the names of the coal seams which they were working, the number of ejections which occurred and percentage figures for audible and inaudible warnings, for combinations of the two, and for cases where no warnings were noted.

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Mine	Seam Worked	Number of Ejections	Warning Signs (%)			No Warnings Noted
			Audible	Combination of Audible and Inaudible	Inaudible	
<u>Central Region</u>						
Yunkom	Aleksandrovskiy Rudnyy	5	--	20	40	40
		16	6	19	44	31
No 1-2	Tolstyy	34	35	32	15	18
Krasnyy	Mazur	18	6	50	33	11
Oktyabr'	Andreyevskiy	8	37	50	--	13
Krasnyy	Andreyevskiy	7	28	29	29	14
Profin-tern	Burakovka	6	--	67	--	33
Imeni Karl Marks	Dvoynoy Devyatka Mazur	6 8 8	34 25 63	33 38 12	-- 25 13	33 12 12
No 8 imeni Stalin	Kutsey	22	5	40	50	5
Imeni Kalinin	Izvestnyachka	6	83	--	--	17
No 1-3 Koche-garka	Devyatka	8	13	25	25	37
<u>Stalino-Makeyevka</u>						
No 17-17-bis	Smolyaninovskiy	38	53	29	8	10

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<u>Warning Signs (%)</u>						
<u>Mine</u>	<u>Seam Worked</u>	<u>Number of Ejections</u>	<u>Audible</u>	<u>Combination of Audible and Inaudible</u>	<u>Inaudible</u>	<u>No Warnings Noted</u>
<u>Oristyskovo</u>						
No 14-14-bis	Fominskiy	5	20	20	60	--
<u>Selieznevskiy Rayon</u>						
No 10 imeni Artem	I Podalmaznyy	9	11	22	67	--
	II Kamen-skiy	18	6	22	61	11
	III Kamen-skiy	8	--	25	63	12

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